In the disclosed and claimed embodiments of the invention, a sensor is provided that comprises a hollow structure 115 housing the sensitive element 105 and covered by a second chip 125 to form the hollow structure 115. Formed in the second chip 125 is a processing circuit 130 that operates on the signal generated by the first chip 110 supporting the sensitive element 105.

Otani et al., U.S. Patent No. 5,864,063, describes, with reference to Figures 1 and 2, an acceleration sensor 2 having a first substrate 4 provided with a mass 14 and a second substrate 3 attached to the first substrate. Bonded on the second substrate 3 is an integrated circuit 6 by means of an adhesive material 9. The integrated circuit 6 is a detection circuit for detecting acceleration from the change in the electrostatic capacity of the sensor 2. Otani et al. does not either suggest forming the integrated circuit 6 in the second substrate 3. In addition, Otani et al. does not teach or suggest electrically coupling the integrated circuit 6 with pads, teaching instead the use of bonding wires 7 having to pass through holes 8 formed in the first substrate or, as shown in the embodiment of Figure 7, the use of bumps 31 and a conductive material 32 filling the holes 8.

Turning to the claims, claim 1 is directed to a sensor with a moveable microstructure that comprises a sensitive element in a first chip of semiconductor material and enclosed in a hollow hermetic structure formed by a second chip of semiconductor material attached to the first chip of semiconductor material over the sensitive element. Claim 1 further recites a processing circuit for processing the electrical signal formed in the second chip and an electrical connection with the electrical signal produced by the sensitive element formed in the first chip, and including a metal wall disposed on a surface of the first chip around the sensitive element, the second chip being fixed to the wall.

As discussed above, claim 1 clearly recites the processing circuit formed in the second chip, whereas Otani et al. teaches attaching a separate integrated circuit 6 by adhesive 9 on the exterior of the substrate 3. The disadvantage of the sensor described by Otani et al. is that it requires the manufacturing steps of making and bonding the integrated circuit 6 to the top of the substrate 3. Another disadvantage of the sensor described by Otani et al. is that it requires the use of bonding wires or bumps and conductive material that must pass through holes 8 that have to be formed in the first substrate 3. Moreover, besides requiring the additional step of bonding

the integrated circuit 6 to the top of the substrate 3, this configuration raises problems due to differences in the thermal expansion coefficients and electrical characteristics of the integrated circuit 6 and the substrate 3. One of ordinary skill would find no motivation to combine Otani et al. with Martin et al., and any combination of Otani et al. with Martin et al. would fail to meet the specific limitations recited in claim 1. Applicants respectfully submit that claim 1 is clearly allowable over the references cited by the Examiner.

Applicants further submit that dependent claims 2-7 are also allowable for the reasons why claim 1 is allowable. In addition, claim 2 recites the metal wall as being formed substantially of nickel, and claim 3 recites the conductive pads formed on the first and second chips for electrical connection. No combination of Otani et al. and Martin et al. teaches or suggests these embodiments of the invention. Rather, both documents suggest the use of an integrated processing circuit that is separated from the cover of the hollow structure, which is made of a semiconductor substrate according to Otani et al. or made of a metal plate according to Martin et al. None of them teach or suggest a metal wall or the use of pads to provide electrical connections.

Independent claim 12 is directed to a sensor that comprises a first chip of semiconductor material, a sensor element having a moveable structure and supported by the first chip, a second ship of semiconductor material covering the sensor element and having a processing circuit formed therein and electrically coupled to the sensor element, and a wall formed on the first chip and surrounding the sensor element and connecting the first chip to the second chip to define a hermetically sealed chamber between the first and second chips and enclosing the sensor element. As discussed above with respect to claim 1, neither Otani et al. nor Martin et al., taken alone or in any combination thereof teach or suggest the claimed invention. Applicants respectfully submit that claim 12, as well as dependent claims 13 and 15-20, are allowable.

In view of the foregoing, applicants respectfully submit that all of the claims remaining in this Application are clearly in condition for allowance. In the event the Examiner disagrees or finds minor informalities, the Examiner is urged to contact applicants' undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of

this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the claim by the current amendment. The attached page is captioned "**Version With Markings to Show Changes Made.**"

Respectfully submitted,

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